



The Telecommunication (Broadcasting and Cable) Services Digital Addressable Systems Audit Manual



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1. Background & Introduction

- 1.1 Keeping in view the implementation of Digital Addressable Systems (DAS) and effectively utilizing its benefits, Telecom Regulatory Authority of India (TRAI) after due consultation process brought out a common regulatory framework for digital addressable systems on 3 March 2017. This framework comprises of Interconnection Regulations, Quality of Service Regulations and Tariff Order for providing broadcasting services relating to television through digital addressable system.
- 1.2 The Interconnection regulations namely the Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) Regulations, 2017 dated 3 March 2017 (herein after the Interconnection Regulations 2017) cover technical and commercial arrangements between Broadcaster & Distributor and Distributor & Local Cable Operators (LCOs) for providing television services to the consumers. TRAI also issued Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) (Amendment) Regulations, 2019 (7 of 2019) on 30 October 2019 (herein after called Amendment Regulations).
- 1.3 In the DAS based TV services value chain, a broadcaster uplinks signals of pay television channel to satellite in encrypted form. The distributor receives the signals from the satellite and decodes them using the decoder provided by the broadcaster. After processing and merging the TV Channel signals of multiple broadcasters the distributor encrypts the combined signals and retransmits it further, either directly or through local cable operator, to customer. The distributor could be a Multi-System Operator (MSO), a Direct to Home operator (DTH), a Head-end in The Sky operator (HITS) or IPTV operator.
- 1.4 The Interconnection Regulations 2017 provides for the Audit initiated by the Distribution Platform Operator (DPO) vide sub-Regulation (1) of Regulation 15 or by the Broadcaster vide sub-Regulation (7) of Regulation 10 and sub-Regulation (2) of Regulation 15. The Audit of the systems of DPO is necessary to ensure that the equipment and the software (including configuration of

systems) comply with the extant regulatory framework. The new framework envisages that the DPO gets its systems audited every year so as to ensure compliance.

1.5 The regulations also provide for audit caused by a Broadcaster. There is a provision for Audit caused by a Broadcaster, before the provisioning of signals to a new DPO as per sub-Regulation (7) of Regulation 10. Broadcaster caused audit could also occur as per sub-Regulation (2) of Regulation 15.

1.6 The Telecommunication (Broadcasting and Cable) Service Interconnection (Addressable Systems) Regulations, 2017, are accessible on TRAI website www.traai.gov.in.

1.7 The Authority had issued a consultation paper on 'Empanelment of Auditors for Digital Addressable Systems' on 22 December, 2017. As a matter of practice and following a transparent process an open house discussion (OHD) on the above-mentioned consultation paper was convened on 12 April 2018 in Delhi. One of the suggestions received from some stakeholders was to develop a comprehensive audit manual for auditors to audit digital addressable systems. Further, it was also suggested that in addition to other aspects the said audit manual may consist of a well-defined audit procedure.

1.8 Accordingly the Authority constituted a committee comprising of industry stakeholders to prepare and submit draft Audit manual to the Authority. The committee had representatives from the following firms/organisations/associations:

- Broadcast Engineering Consultants India Limited (BECIL)
- Indian Broadcasting Foundation (IBF)
- News Broadcasters Association (NBA)
- All India Digital Cable Federation (AIDCF)
- M/s Tata Sky Ltd.
- M/s Dish TV India Ltd.

- M/s Bharti Telemedia Ltd.
- M/s Sun Direct TV Pvt. Ltd.

1.9 The committee held several meetings in TRAI. These meetings were facilitated by the Authority. After extensive deliberations, the industry reached consensus on most of the issues barring few issues and submitted a draft audit manual to the Authority. The Authority conveys its appreciation for the extensive work done by the committee and also on arriving at a consensus on a number of issues.

1.10 Based on the committee report and after considering all objections/representations, the Authority issued a consultation paper on 'The Telecommunication (Broadcasting and Cable) Services Digital Addressable Systems Audit Manual on 29 March 2019.

1.11 All the comments received in the consultation process including at the Open House Discussions, have been duly considered.

1.12 This Audit manual addresses issue of audit in terms of Regulations 10 and 15 of the Interconnection Regulations 2017.

1.13 This audit manual may be reviewed periodically, owing to the technological/ techno-commercial changes, market development and changes in the systems. The Audit Manual is proposed as a guidance document for stakeholders. This manual does not supersede any provision(s) of the extant regulations. In case of any discrepancy between the provision of Interconnection Regulations 2017, other extant Regulations or Tariff Order and the Audit Manual, the provisions as per the regulations/ tariff Orders shall prevail.

1.14 The audits provisioned under Interconnection Regulations 2017 are broadly divided into two categories (i) pre-signal or compliance audit and (ii) subscription audit. As per the Regulation, the DPO and broadcasters can get the audit conducted either by M/s. Broadcast Engineering Consultants India Limited (BECIL) or any other agency empanelled by TRAI. The list of auditors

empanelled by TRAI is available on TRAI's website: www.traai.gov.in. The broad scope of work to be covered under these audits, procedure for conduct and other necessary information has been mentioned in the sections below.

2. Pre signal or Compliance Audit

- 2.1 The audit will be called Pre-signal audit if it is carried out before the content acquisition by the Distribution Platform Operator (DPO) from respective broadcaster otherwise it will be called as compliance audit. It may be noted that pre-signal/compliance audit will be carried out as per Schedule III mentioned in the Interconnection Regulations 2017.
- 2.2 In accordance to the sub-regulation (6) of regulation 10, every distributor of television channels before requesting signals of television channels from a broadcaster shall ensure that the addressable systems to be used for distribution of television channels meet the requirements as specified in the Schedule III of the Interconnection Regulations 2017. For ensuring the same, DPO can get the pre-signal Audit conducted either by BECIL or any other agency empanelled by TRAI.
- 2.3 It is clarified here that before requesting signals of television channels, getting its DAS system audited from BECIL or any other agency empanelled by TRAI as per Schedule III compliance is not mandatory for DPO under sub-regulation (6) of regulation 10 of Interconnection Regulations 2017. However, every distributor of television channels shall ensure that before requesting signals of television channels from a broadcaster the addressable systems to be used for distribution of television channels meet the requirements as specified in the Schedule III of Interconnection Regulation 2017 and the DPO may provide its declaration in writing to broadcaster regarding Schedule III compliance along with below mentioned documents for requesting signals.
- CAS certificate provided by vendor.
 - SMS certificate provided by vendor.

- STB certificate provided by vendor.
- BIS compliance certificate.

2.4 Sub-regulation (7) of Regulation 10 of the Interconnection Regulations 2017 specifies that if a broadcaster, **without pre-judice to the time limit specified in Sub-Regulation (2) of Regulation 10**, is of the opinion that the addressable system, being used by the distributor for distribution of television channels, does not meet the requirements specified in the Schedule III of the Interconnection Regulation 2017, it may, cause audit of the addressable system of the distributor by M/s. Broadcast Engineering Consultants India Limited (BECIL), or any other auditor empanelled by the Authority for conducting such audit and provide a copy of the report prepared by the auditor to the distributor. However, it is important to note the proviso to the Sub-regulation (7)¹ of Regulation 10, before instituting such audit by the broadcaster.

2.5 The proviso to the said Regulation provides for the case where the system of the distributor has been successfully audited (with full compliance) during the last one year by M/s. Broadcast Engineering Consultants India Limited (BECIL), or any other auditor empanelled by the Authority. In such case, if the distributor provides for the report of the Audit (conducted during the pre-ceding one year) to the Broadcaster, then the broadcaster shall not cause pre-signal audit, unless the configuration or the version of the addressable system has been changed after the issuance of the report by the auditor.

2.6 Therefore, the pre-signal audit may also be commissioned by the broadcaster to satisfy itself that the distributor, to whom it is likely to provide television signal, meets the addressable system requirements as per Schedule III of the Interconnection Regulations 2017. As such the audit fees for such audit will be

¹ Proviso to Sub Reg (7) of Regulation 10 “Provided that unless the configuration or the version of the addressable system of the distributor has been changed after issuance of the report by the auditor, the broadcaster, before providing signals of television channel shall not cause audit of the addressable system of the distributor if the addressable system of such distributor has been audited during the last one year by M/s. Broadcast Engineering Consultants India Limited, or any other auditor empanelled by the Authority and the distributor produces a copy of such report as a proof of conformance to the requirements specified in the Schedule III.”

borne by the broadcaster. In case(s) of pre-signal audit by a broadcaster only technical audit is required to be conducted.

- 2.7 Annual Compliance Audit: As per sub-regulation (1) of Regulation 15 of the Interconnection Regulations 2017, every distributor of television channels shall, once in a calendar year, cause audit of its subscriber management system, conditional access system and other related systems by an auditor to verify that the monthly subscription reports made available by the distributor to the broadcasters are complete, true and correct, and issue an audit report to this effect to each broadcaster with whom it has entered into an interconnection agreement. The annual Audit caused by Distributor shall include the Audit to validate compliance with the Schedule III of the Interconnection Regulations 2017 and the Subscription Audit, as provided for in Interconnection Regulations 2017.
- 2.8 Once an interconnection agreement has been signed between a Broadcaster and DPO, if any changes, modification and alterations are made to the configuration or version of the addressable system (CAS, SMS and other related systems) of the DPO and/or distribution network of DPOs (“Changes”), then these should be notified within seven (7) days to the relevant Broadcasters. DPO shall provide an undertaking that the changes do not in any way compromise the system and the set-up and all the equipment including software meets the statutory compliance requirements.
- 2.9 In order to avoid any dispute, the changes as mentioned below in DAS System can cause the audit by broadcaster under sub regulation (7) of regulation 10 of Interconnection Regulation 2017, before providing signals of television channels to DPO. It may also be noted that these changes are also required to be formally informed to broadcasters by DPO within 7 days from the implementation date of these changes:

a) Addition/Deletion of SMS

b) Change in the SMS version w.r.t last audited SMS

- c) Addition/Deletion of CAS**
- d) Change in the CAS version w.r.t last audited CAS**
- e) Deployment of new type of STBs by DPO which were not audited earlier.**

2.10 Subject to conformance to Regulation 11, the distributor may extend territory of interconnection agreement by giving a written notice to the broadcaster providing at least 30 days to the broadcaster. In such cases, the distributor shall also inform the Broadcaster formally after 7 days of actual extension of the territory.

3. Scheduling of Pre signal or Compliance Audits

- 3.1 There is no specific timelines for conducting the pre-signal/compliance audits. Pre-signal or compliance audit can be conducted at any stage whenever DPO wants to ensure that the DAS system is in compliance as per Interconnection Regulations 2017. As mentioned earlier, as per sub-regulation (1) of Regulation 15, the annual Audit caused by Distributor shall include the Audit to validate compliance with the Schedule III of the Interconnection Regulations 2017 and the Subscription Audit, as provided for in Interconnection Regulations 2017. The annual Audit as caused by Distributor under regulation 15 (1) shall be scheduled in such a manner that there is a gap of at-least six months between the audits of two consecutive calendar years. Further, there should not be a gap of more than 18 months between audits of two consecutive calendar years.
- 3.2 Whenever Broadcaster is of the opinion that the system of DPO is not in compliance with the Schedule III of Interconnection Regulations 2017, Broadcaster can schedule the audit of DPO by selecting BECIL or any other auditor empanelled by the Authority for conducting such audit, in case of Compliance Audit (or in case of pre-signal audit, after taking into consideration the proviso to sub regulation 7 of Regulation 10).

4. Scope of work under pre-signal/compliance audit

- 4.1 Perform walk-through of the main head-end/s where CAS and SMS servers are deployed.
- 4.2 Obtain Headend diagram and validate with the equipment installed in the head-end/s.
- 4.3 Perform checks on IP configuration to confirm and identify live and proxy servers. This shall include IP credentials of all the servers including MUX.
- 4.4 Take inventory of IRDs + VCs issued by broadcaster including their serial numbers. Make note of broadcasters IRDs + VCs available but not installed.
- 4.5 Check MUX configuration to validate number of Transport Streams ("TS") configured with SID, scrambling status of each SID and ECM and EMM configuration (MUX-TS Stream-No. of ECM & EMM configured)
- 4.6 Take screenshot of all TS streams from MUX and compare with results of field TS recorded randomly at minimum two locations by auditor.
- 4.7 Take information of QAMs installed and powered to identify streams available for local insertion by LCOs.
- 4.8 Obtain record of PSI/SI server to confirm EPG, LCN etc. details.
- 4.9 Check PSI/SI server that it has EPG push capability.
- 4.10 Confirm insertion of watermarking network logo for all channels from encoder end. Only the encoders deployed after coming into effect of the Amendment Regulations shall support watermarking network logo for all pay channels at the encoder end.
- 4.11 Use FTA cable box/ TS analyzer to confirm whether all channels are encrypted.
- 4.12 Walkthrough and understand the customer acquisition process and verification of sample CAF and PAF forms available with DPO.
- 4.13 Verification of Interconnection Regulation 2017 Schedule III compliance of the DPO DAS System (CAS, SMS, Fingerprinting and STB) as per procedure mentioned in section 7 of the Audit Manual.

- 4.14 Data Extraction from CAS and SMS should be carried out as per requirements specified in Schedule III of Interconnection Regulations 2017. Procedure and method of data extraction is specified in the section 7 and section 16 of the Audit Manual.
- 4.15 Report the channels found running in unencrypted or analogue mode on the day of Audit.
- 4.16 Analysis and verification of TS recording/VC samples provided by broadcasters may also need to be covered under scope of work. However, the procedure to be followed for carrying out such analysis and verification are mentioned separately in the section 17 of the Audit Manual.

5. Documents required under pre-signal/Compliance audit

- 5.1 Valid DAS license/ permission issued by Ministry of Information and Broadcasting (MIB)
- 5.2 BIS certificates for all makes & models of STB deployed by DPO after DAS implementation.
- 5.3 Certificate from all the CAS vendors (Format as in **Annexure 1**).
- 5.4 Certificate from SMS vendors (Format as in **Annexure 2**).
- 5.5 Block Schematic diagram of Head-end including CAS and SMS.
- 5.6 Signed and stamped copy of compliance audit form as per **Annexure 3**.
- 5.7 Certificate from STB vendor (Format as in **Annexure 4**).
- 5.8 List of all the decoder along with VC serial numbers issued by broadcasters to DPO.

6. Methodology to be adopted for pre-signal/Compliance Audit

- 6.1 The audit either will be caused by the DPO or by the Broadcaster by selecting BECIL or one of the audit agencies empanelled by TRAI.

- 6.2 Once the audit is scheduled, the DPO will immediately inform concerned broadcasters regarding the audit of its DAS system by the selected empanelled agency or BECIL. The broadcasters will then arrange to provide TS recordings and VCs (if any) for verification during audit and will share the same with auditors before the conduct of audit.
- 6.3 If the compliance audit is caused by broadcaster, in such cases broadcaster may share the TS recording/VC numbers (if any) with auditors for verification during conduct of audit.
- 6.4 After the appointment by DPO or broadcaster, auditor will immediately ask DPO whether DPO has any objections regarding usage of its laptop for the conduct of audit.
- 6.5 If DPO has objections and wants to provide its own laptop for conduct of audit then auditor need to convey its requirement of software or any other tool required during the conduct of audit.
- 6.6 The auditor will also share the documents requirements with DPO as specified in section 5 of the audit manual.
- 6.7 The minimum configuration requirement of laptop is mentioned in the section 19 of audit manual which should be provided by DPO to auditor. DPO is free to provide laptop of higher configuration also.
- 6.8 During the audit, Auditor should carry out all the checks/verification as mentioned under section 4 (scope of work under pre-signal/compliance audit) at all head-ends of DPO where the CAS and SMS servers are installed.
- 6.9 The audit for compliance to Schedule III of Interconnection regulation 2017 should be carried out by auditor as per procedure specified in section 7 of the Audit Manual.
- 6.10 The data extraction from CAS and SMS under compliance audit should be carried out as per section 7 of the Audit Manual.
- 6.11 The auditor will prepare the pre-signal/compliance audit report as per format provided in **Annexure 6** of the Audit Manual.
- 6.12 After the completion of audit, auditor will submit the copy of the audit report to DPO only if the audit is caused by DPO. It should be the responsibility of DPO to share the audit report with broadcaster whenever such requests are made.

6.13 If the audit is caused by the broadcaster then the auditor will share the audit report copies both with broadcaster as well as DPO.

6.14 In case the audit report is non-compliant to Interconnection Regulations 2017 then it is the responsibility of auditor to provide non-compliance status information to TRAI whether the audit is caused by DPO or broadcaster.

7. Procedure to be followed for inspection of Schedule III of Interconnection Regulations 2017 Compliance

A. CAS and SMS requirements as per Schedule III of TRAI Interconnection Regulations

Sl. no	Regulatory Provision	Audit Procedure
1	<p><u>Schedule III – C 1</u></p> <p>The distributor of television channels shall ensure that the current version of the CAS, in use, do not have any history of hacking.</p>	<p>i. DPO to declare on its audit form the no. of CAS systems deployed in each of its distribution networks. It should mention the no. of 'Headend' connected with the said CAS. This declaration is required to be signed by the authorized signatory/compliance officer. (Annexure 3)</p> <p>ii. DPO to provide certificate from each CAS vendor on CAS vendor letterhead signed by no less than Authorized Signatory/Compliance Officer of the CAS vendor (Issued within last 12 months and certify current operating version of CAS) (Annexure 1).</p> <p>iii. Auditor to perform TS recording: i) At the Headend; ii) In the field at appropriate place. Auditor to analyze the TS streams to ascertain actual number(s) of CAS running in the network and compare with the declaration made as part of agreement with the broadcaster. Auditor to record discrepancy, if any.</p>
2	<p><u>Schedule III – C 2</u></p> <p>The SMS shall be independently capable of generating, recording, and maintaining logs, for</p>	<p>a) To check the availability of logs in SMS for the period of last 2 years and analyze activation, de-activation, fingerprinting, messaging, blacklisting etc.</p>

	<p>the period of at least immediate preceding two consecutive years, corresponding to each command executed in the SMS including but not limited to activation and deactivation commands.</p>	<p>b) DPO to certify on its letterhead the number of SMS deployed along with its integration status with all the CAS deployed.</p> <p>c) DPO to provide declaration from SMS vendor on SMS vendor letterhead (not older than 6 months) signed by no less than Authorized Signatory/Compliance Officer of the SMS vendor (Annexure 2).</p> <p>d) The above SMS certificate (Annexure 2) should mention DPO name & address matching with name & address mentioned in DPO registration certificate issued by Ministry of I&B, Govt. of India.</p> <p>e) Auditors to check system capability for generating historical transaction logs along with date and time stamp.</p> <p>f) Auditor to check, verify and document whether all the actions, including but not limited to activation, de-activation, package creation, package change/modification, FP insertion, and scroll insertion are being recorded in SMS.</p>
3	<p><u>Schedule III – C 3</u></p> <p>It shall not be possible to alter the data and logs recorded in the CAS and the SMS.</p>	<p>Simulation test should be carried on one model of every STB available in the inventory of DPOs for all actions such as subscriber creation, activation –de-activation, channel assignment, fingerprinting, messaging, scrolling through SMS.</p> <p>The logs of these activities then are required to be cross checked both in CAS and SMS live systems and whether these can be edited or not.</p> <p>It is clarified here that non editable requirement of SMS and CAS logs should be checked through live systems only. Once extracted or downloaded to any format these logs can be editable.</p>
4	<p><u>Schedule III – C 4</u></p> <p>The distributor of television channels shall validate that the CAS, in use, do not have facility to activate and deactivate a Set Top</p>	<p>a) DPO to provide declaration and demonstrate procedures that all activations and deactivations of a Set Top Box (STB) directly from the CAS terminal are not done as a part of normal business operations. All activation and deactivation of STBs is done through SMS, except for internal testing purposes.</p> <p>b) Auditor on sample basis can check by trying to</p>

	Box (STB) directly from the CAS terminal. All activation and deactivation of STBs shall be done with the commands of the SMS.	activate some STBs directly from the CAS and record the findings.
5	<p><u>Schedule III – C 5</u></p> <p>The SMS and the CAS should be integrated in such a manner that activation and deactivation of STB happen simultaneously in both the systems.</p>	<p>Auditor should perform simulation testing on one STB of every model deployed (if available in the inventory of DPO) as per following process:</p> <p>i) Activate different channels / packages on all test STBs from SMS.</p> <p>ii) Check transaction logs in SMS server and CAS server to confirm the activities related to channel activation and other simulation tests carried out reflects in both SMS and CAS logs with same date & time.</p> <p>iii) Auditor should perform as on date unique VC Level Reconciliation from the data dump of CAS and SMS. VCs active in CAS but not in SMS and similarly VCs active in SMS but not in CAS should be highlighted as discrepancy.</p>
6	<p><u>Schedule III – C 6</u></p> <p>The distributor of television channels shall validate that the CAS has the capability of upgrading STBs over-the-air (OTA), so that the connected STBs can be upgraded.</p>	<p>a) Auditor to check that the CAS declaration (Annexure 1) confirms the availability of this facility.</p> <p>b) Auditor to verify the feature on test STB and record the findings.</p>
7	<p><u>Schedule III – C 7</u></p> <p>The fingerprinting should not get invalidated by use of any device or software.</p>	<p>a) Auditor should trigger a fingerprint (any one ECM/EMM) of minimum 180 seconds duration from SMS/CAS to the test STB (minimum 180 seconds timeline is to ensure that fingerprinting command is still available on STB when it is rebooted as some of the STB takes at least 120 seconds to reboot).</p>

		<p>b) In case the CAS does not have provisions to send minimum 120 seconds FP then multiple commands of FP of short duration may be sent to verify the same.</p> <p>c) The STB should be rebooted, and fingerprint should reappear again automatically. If fingerprint disappears, auditor should take appropriate note.</p>
8	<p><u>Schedule III – C 8</u></p> <p>The CAS and the SMS should be able to activate or deactivate services or STBs of at least five percent (5%) of the subscriber base of the distributor within 24 hours.</p>	<p>Auditor should check CAS declaration (Annexure 1) and SMS declaration (Annexure 2) that mentions this capability.</p>
9	<p><u>Schedule III – C 9</u></p> <p>The STB and Viewing Card (VC) shall be paired from the SMS to ensure security of the channel.</p>	<p>a) Auditor should verify that paired VC of one STB should not work with another STB</p> <p>b) Auditor to interchange VC between two STBs of the DPO and confirm that both STBs give error message on-screen.</p> <p>c) Auditor should take screenshot of the error message and include in audit report.</p> <p>d) Only applicable in case of carded STBs.</p>
10	<p><u>Schedule III – C 10</u></p> <p>The CAS and SMS should be capable of individually addressing subscribers, for the purpose of generating the reports, on channel by channel and STB by STB basis.</p>	<p>Auditor should:</p> <p>a) Activate fresh STBs individually through SMS and verify whether the same is activated in CAS as well.</p> <p>b) Add existing packages and channels to the test customer created through SMS and verify channels were activated in CAS and are visible on TV monitor.</p> <p>c) Remove packages / channels through SMS allotted to the test STB.</p>

		<p>d) After completing all other audit tests deactivate the test STB through SMS.</p> <p>e) Extract the logs of SMS and CAS for the day to check whether the above commands related to activation, deactivation of customer and packages was captured with date and time stamp.</p>
11	<p><u>Schedule III – C 11</u></p> <p>The SMS should be computerized and capable of recording the vital information and data concerning the subscribers such as:</p> <p>(a) Unique customer identification (ID)</p> <p>(b) Subscription contract number</p> <p>(c) Name of the subscriber</p> <p>(d) Billing address</p> <p>(e) Installation address</p> <p>(f) Landline telephone number</p> <p>(g) Mobile telephone number</p> <p>(h) E-mail address</p> <p>(i) Channels, bouquets and services subscribed</p> <p>(j) Unique STB number</p> <p>(k) Unique VC number</p>	<p>Auditor should:</p> <p>a) Create at least two test customers in SMS with names - "AuditTest1Customerddmmmy", "AuditTest2Customerddmmmy"</p> <p>b) Allocate fresh hardware and map the test customer to an LCO/ DPO</p> <p>c) Check whether item "(a) to (k)" specified in Schedule-III C 11 are getting captured (Auditor to provide details for filling the CAF)</p> <p>d) Take SMS screenshot(s) such that all items are covered</p> <p>e) Generate SMS customer details report state wise and check the fields "a to k" are appearing.</p> <p>f) Auditor to deactivate the test subscribers from the SMS and confirm the corresponding STB is deactivated for all channels / services.</p> <p>g) Sample verification of 5 CAF forms selected randomly from the list of customers activated in last one month.</p>

<p>12</p>	<p><u>Schedule III – C 12</u></p> <p>The SMS should be capable of:</p> <p>(a) Viewing and printing of historical data in terms of the activations and the deactivations of STBs.</p> <p>(b) Locating each and every STB and VC installed.</p> <p>(c) Generating historical data of changes in the subscriptions for each subscriber and the corresponding source of requests made by the subscriber.</p>	<p>Auditor should ensure:</p> <p>a) Date & time stamp is mandatory in report generation.</p> <p>b) All data from SMS server should be extracted in such a manner that no STB/VC is left out from the database.</p> <p>c) The screen shots and explanations of the queries shall be provided after masking customer confidential data of the DPO before handing over to the auditor and such screen shots and explanation should be included in the report.</p> <p>d) The Auditor will check the generation capability of these reports in SMS at any desired time from the front end (SMS application) of the SMS.</p> <p>e) The SMS reports generated during the audit exercise for verification will be enclosed with audit report as Annexures.</p>
<p>13.</p>	<p><u>Schedule III – C 13</u></p> <p>The SMS should be capable of generating reports, at any desired time about:</p> <p>(a) The total number of registered subscribers.</p> <p>(b) The total number of active subscribers.</p> <p>(c) The total number of temporary suspended subscribers.</p> <p>(d) The total number of deactivated subscribers.</p>	<p>f) The auditor on sample basis will also generate three reports from the SMS database (back end) also and verify these reports with the reports generated from SMS application.</p> <p>g) It should be clarified here that auditor will not insist on the specified format of the reports generated from the front end (SMS application) or back end (SMS database) of the SMS However the report should be able to reflect desirable information.</p>

	<p>(e) List of blacklisted STBs in the system.</p> <p>(f) Channel and bouquet wise monthly subscription report in the prescribed format.</p> <p>(g) The names of the channels forming part of each bouquet.</p> <p>(h) The total number of active subscribers subscribing to a particular channel or bouquet at a given time.</p> <p>(i) The name of a-la carte channel and bouquet subscribed by a subscriber.</p> <p>(j) The ageing report for subscription of a particular channel or bouquet.</p>	
14	<p>Schedule III – C 14</p> <p>The CAS shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the CAS including but not limited to activation and deactivation commands issued by the SMS.</p>	<p>Auditor should ensure:</p> <ul style="list-style-type: none"> a) Date & time stamp should be captured in all the reports generated from CAS. b) Auditor to extract historical transactional logs from CAS for audit period and confirm the availability of the data required. c) All data from CAS server (CAS servers installed by DPO and it's JVs CAS (including standby headends, mini headends) should be extracted in such a manner that no STB/VC is left out from the database. d) The screen shots and explanations of the queries that are run shall be provided after masking customer confidential data of DPO before handing over to the auditor and such

		<p>screen shots and explanations should be included in the report.</p> <p>e) Annexure1 should mention that CAS logs are available for up to preceding two consecutive years for each command executed in the CAS.</p>
15	<p><u>Schedule III – C 15</u></p> <p>The CAS shall be able to tag and blacklist VC numbers and STB numbers that have been involved in piracy in the past to ensure that such VC or the STB cannot be re-deployed.</p>	<p>a) Auditor to blacklist one STB & VC of each CAS (separate from test STB & VC) from SMS, and check the status of the STB+VC in CAS and SMS</p> <p>b) Auditor to take logs of blacklisted STB +VC from CAS and SMS</p> <p>c) Take screenshot of the blacklist screen to record the above and include in the report.</p> <p>d) If any STB of DPO has been blacklisted during audit for verification purpose, the same STB should be considered by auditor during re-audit caused by broadcaster unless broadcaster has any objections in respect of blacklisting capabilities of SMS and CAS deployed by DPO.</p>
16	<p><u>Schedule III – C 16</u></p> <p>It shall be possible to generate the following reports from the logs of the CAS:</p> <p>(a) STB-VC Pairing / De-Pairing</p> <p>(b) STB Activation / De-activation</p> <p>(c) Channels Assignment to STB</p> <p>(d) Report of the activations or the deactivations</p>	<p>Auditor will generate these reports from the CAS and would verify the same by generating these reports from SMS transactions log</p> <p>a) STB VC pairing de-pairing report is applicable only for carded CAS.</p> <p>b) Auditor shall keep screenshots of each report with masking of customer confidential data of DPO and include in the report.</p> <p>c) All data from CAS server to be extracted in such a manner that no STB/VC is left out from the database</p> <p>d) It should be clarified here that auditor will not insist on the specified format of the reports generated from the CAS application or from CAS server. However, the report should be</p>

	of a particular channel for a given period.	able to reflect and produce desirable information.
17	<p><u>Schedule III – C 17</u></p> <p>The SMS shall be capable of generating bills for each subscriber with itemized details such as the number of channels subscribed, the network capacity fee for the channels subscribed, the rental amount for the customer premises equipment, charges for pay channel and bouquet of pay channels along with the list and retail price of corresponding pay channels and bouquet of pay channels, taxes etc.</p>	<p>On sample basis, Auditor to verify the Itemized bill generated from the SMS to ensure that it captures all the mentioned details in this clause & record a copy of the bill format & any discrepancy noticed, if any, in the audit report.</p>
18	<p><u>Schedule III – C 18</u></p> <p>The distributor shall ensure that the CAS and SMS vendors have the technical capability in India to maintain the systems on 24x7 basis throughout the year.</p>	<p>a) Auditor to check that the CAS declaration from each CAS vendor (Annexure 1) mentions the availability of this facility.</p> <p>b) Auditor to check that the SMS declaration (Annexure 2) from each SMS vendor mentions the availability of this facility.</p>
19	<p><u>Schedule III – C 19</u></p> <p>The distributor of television channels shall declare the details of the CAS and the SMS deployed for</p>	<p>a) DPO to declare on its letterhead the no. of CAS systems and SMS deployed in each of its distribution networks. It should mention the no. of “Headends” connected with the said CAS and SMS. This declaration is to be signed by authorized signatory/compliance officer. (Annexure 3)</p>

	distribution of channels. In case of deployment of any additional CAS/ SMS, the same should be notified to the broadcasters by the distributor.	b) Any changes in CAS and SMS and STB should be reported by DPO and can be verified by auditor.
20	<u>Schedule III – C 20</u> Upon deactivation of any subscriber from the SMS, all program/ services shall be denied to that subscriber.	Auditor to deactivate the "test subscribers" from the SMS and confirm the corresponding STB is deactivated for all channels / services including DD channels.
21	<u>Schedule III – C 21</u> The distributor of television channels shall preserve unedited data of the CAS and the SMS for at least two years.	<p>a) In case of distribution platforms operational for less than 2 years, the Auditor to check that the CAS declaration from each CAS vendor (Annexure 1) mentions the CAS is compliant with this requirement.</p> <p>b) In case of distribution platforms operational for less than 2 years, the Auditor to check that the SMS declaration (Annexure 2) from each SMS vendor mentions the SMS is compliant with this requirement.</p> <p>c) Auditor to take declaration from DPO that it has preserved unedited data of the CAS and the SMS for at least two years if the CAS and SMS system are operational for more than 2 years. (Annexure 3)</p>

B. Fingerprinting:

S. no	Regulatory Provision	Audit Procedure
1	<u>Schedule III – D1</u> The distributor of television channels	a) Auditor to trigger fingerprinting from SMS by inputting start / end time, duration of display, frequency of display and confirming that the fingerprint is seen on the test STB output.

	shall ensure that it has systems, processes and controls in place to run fingerprinting at regular intervals	b) Auditor to take a screenshot of the fingerprint.
2	<p><u>Schedule III – D2</u></p> <p>The STB should support both visible and covert types of finger printing. The fingerprinting should not get invalidated by use of any device or software.</p> <p>Provided that only the STB deployed after coming into effect of the Amendment Regulations shall support the covert finger printing.</p>	<p>a) For visible type of finger printing: same as 1 above</p> <p>b) For covert type: Auditor should ensure this capability is mentioned in STB certificate (Annexure 4) and as well test the same feature during audit.</p> <p>c) Auditor should accept any type of covert fingerprinting.</p> <p>Note: Only the STB deployed after coming into effect of the Amendment Regulations shall be required to support the covert finger printing.</p>
3	<p><u>Schedule III – D 3</u></p> <p>The fingerprinting should not get invalidated by use of any device or software.</p>	<p>a) Auditor should trigger a fingerprint (any one ECM/EMM) of minimum 180 seconds duration from SMS/CAS to the test STB (minimum 180 seconds timeline is to ensure that fingerprinting command is still available on STB when it is rebooted as some of the STB takes at least 120 seconds to reboot).</p> <p>b) In case the CAS does not have provisions to send minimum 120 seconds FP then multiple commands of FP of short duration may be sent to verify the same.</p> <p>d) The STB should be rebooted, and fingerprint should reappear again automatically. If fingerprint disappears, auditor should take appropriate note.</p>

4	<p><u>Schedule III – D 4</u></p> <p>The fingerprinting should not be removable by pressing any key on the remote of STB.</p>	<p>a) Auditor should trigger a fingerprint of at least 120 seconds or above duration from SMS/CAS to the test STB.</p> <p>b) While fingerprint is displayed on STB output connected to TV screen, auditor should press every key on the STB remote control and STB front panel.</p> <p>c) Auditor should confirm that no action while pressing buttons on remote or on STB box (soft boot or hard boot) makes the displayed fingerprint disappear even momentarily for the whole duration of FP.</p>
5	<p><u>Schedule III – D 5</u></p> <p>The finger printing should be on the top most layer of the video.</p>	<p>d) If fingerprint disappears with any key action, this requirement is not complied with.</p> <p>e) It may be noted that in case if FP more than 60 seconds is not triggered through SMS/CAS then multiple commands or repetitions of such FPs may be sent to confirm the compliance.</p>
6	<p><u>Schedule III – D 6</u></p> <p>The finger printing should be such that it can identify the unique STB number or the unique VC number.</p>	<p>Auditor should trigger fingerprint on two test STBs and confirm the fingerprint displayed are unique to the VCs in the STBs (UA no. in card-less STBs).</p>
7	<p><u>Schedule III – D 7</u></p> <p>The fingerprinting should appear on the screens in all scenarios, such as menu, Electronic Program Guide (EPG), Settings, blank screen, and games etc,</p>	<p>a) Auditor should trigger 120 seconds or more duration fingerprint on test STB and use remote control of STB to navigate to Menu page, EPG page, Settings page, Blank screen and Games page.</p> <p>b) Fingerprint should be displayed on all the above-mentioned pages.</p>
8	<p><u>Schedule III – D 8</u></p> <p>The location, font color and background color of fingerprint</p>	<p>Auditor should trigger fingerprint on test STB multiple times, each time with at least 3 different permutation/combinations of location, font color, and background box color. The locations of the</p>

	should be changeable from head end and should be random on the viewing device.	fingerprint should be seen on random areas of the TV screen to make it unpredictable to viewer.
9	<u>Schedule III – D 9</u> The finger printing should be able to give the numbers of characters as to identify the unique STB and/or the VC.	Auditor should trigger fingerprint on two test STBs and confirm the fingerprint displayed are corresponding uniquely to the actual VCs in the STBs (UA no. in cardless STBs).
10	<u>Schedule III – D 10</u> The finger printing should be possible on global as well as on the individual STB basis.	<p>a) Auditor should trigger fingerprint to all STBs and confirm fingerprints are displayed on all test STBs provided DPO has no objection while testing the feature of global FP on all its STBs.</p> <p>b) If DPO has objection then this feature can be checked by giving ECM FP on a non-popular channel.</p> <p>c) Auditor should trigger fingerprint to one test STB and confirm it is displayed on the particular STB only.</p>
11	<u>Schedule III – D 11</u> The overt fingerprinting should be displayed by the distributor of television channels without any alteration with regard to the time, location, duration and frequency.	<p>a) Auditor should obtain fingerprint Schedules from some broadcaster channels distributed by the DPO.</p> <p>b) Auditor should monitor sample channels of those broadcaster on DPO's STB and take screenshot of broadcaster fingerprint seen on TV screen as proof of compliance</p>
12	<u>Schedule III – D 12</u> Scroll messaging should be only available in the lower part of the screen.	<p>a) Auditor should trigger scroll message of 120 characters from the DPO's SMS or CAS targeted to all test STBs.</p> <p>b) The scroll should be displayed as a horizontally moving ticker on the lower part of the TV screen.</p>

13	<p><u>Schedule III – D 13</u></p> <p>The STB should have a provision that fingerprinting is never disabled.</p>	<p>a) Auditor should trigger a fingerprint of 120 seconds or more duration FP from SMS/ CAS to the test STB.</p> <p>b) The STB should be rebooted, and fingerprint should reappear again automatically. If fingerprint disappears, this requirement is not complied with.</p> <p>c) The STB declaration (Annexure 4) should also mention this capability.</p>
14	<p><u>Schedule III – D 14</u></p> <p>The watermarking network logo for all pay channels shall be inserted at encoder end only.</p> <p>Provided that only the encoders deployed after coming into effect of the Amendment regulations shall support watermarking network logo for all pay channels at the encoder end.</p>	<p>To confirm the network logo is inserted from the encoder end only for all channels:</p> <p>a) Auditor should disconnect all test STBs from RF signal and then observe the TV screen.</p> <p>b) If network logo is still visible on TV screen, then the requirement of insertion of network logo at the encoder end is not complied with.</p> <p>c) Screenshot of the observations should be included as part of the audit report.</p> <p>Note: Only the encoders deployed after coming into effect of the Amendment regulations shall support watermarking network logo for all pay channels at the encoder end.</p>

(C) Set Top Box (STB):

S. no	Regulatory Provision	Audit Procedure
1	<u>Schedule III – E1</u>	To inspect all models of STBs available in the inventory of MSOs or deployed (2 units of each make & model) under test and confirm the STB

	All STBs should have a Conditional Access System.	serial no./VC no./UA no. exists in the live CAS database.
2	<u>Schedule III – E 2</u> The STB should be capable of decrypting the Conditional Access messages inserted by the Head-end.	The auditor will check and verify whether the STB is able to execute all the commands initiated from the CAS whether activation/de-activation of particular channel or package or FP/messaging command without any major delay or issue.
3	<u>Schedule III – E 3</u> The STB should be capable of doing fingerprinting. The STB should support both Entitlement Control Message (ECM) and Entitlement Management Message (EMM) based fingerprinting.	<p>a) To trigger fingerprinting on a particular channel and confirm fingerprint is seen on all test STBs on that particular channel only at the same time. This is ECM based fingerprinting.</p> <p>b) To trigger fingerprinting on all channels and confirm fingerprint is seen on all test STBs on all channels at the same time. This is EMM based fingerprinting.</p> <p>c) The auditor will check and verify both types of fingerprinting on each and every model of STB available with DPO in its inventory.</p>
4	<u>Schedule III – E 4</u> The STB should be individually addressable from the Head-end.	The auditor will verify whether the STB are addressable by performing simulation tests on the STB for activation/de-activation.
5	<u>Schedule III – E 5</u> The STB should be able to receive messages from the Head-end.	<p>a) Auditor should trigger scroll message of 120 characters from the DPO's SMS targeted to all test STBs.</p> <p>b) The scroll should be displayed in its entirety as a horizontal moving ticker on the lower part of the TV screen.</p>
6	<u>Schedule III – E 6</u> messaging character length should be minimal 120 characters.	a) Auditor should trigger scroll message of 120 characters from the DPO's SMS targeted to all test STBs.

		b) The scroll should be displayed in its entirety as a horizontal moving ticker on the lower part of the TV screen.
7	<p><u>Schedule III – E 7</u></p> <p>There should be provision for global messaging, group messaging and the individual STB messaging</p>	<p>a) Auditor should trigger scroll to all STBs and confirm it is displayed on all test STBs.</p> <p>b) Auditor should trigger scroll to one test STB and confirm it is displayed on the particular STB only.</p>
8	<p><u>Schedule III – E 8</u></p> <p>The STB should have forced messaging capability including forced finger printing display.</p>	<p>Auditor should trigger scroll messaging from SMS or CAS to all STB in the network which should display the fingerprint as the message. Auditor should take screenshot of the display</p>
9	<p><u>Schedule III – E 9</u></p> <p>The STB must be compliant to the applicable Bureau of Indian Standards</p>	<p>a) Auditor should take copies of BIS certificates from the DPO for each make & model of STB procured after 2012.</p> <p>b) The certificates should mention exact STB make & model nos.</p> <p>c) As of the audit date, the certificates should be valid.</p>
10	<p><u>Schedule III – E 10</u></p> <p>The STBs should be addressable over the air to facilitate OTA software upgrade.</p>	<p>DPO shall give a declaration on its letterhead mentioning the availability of this facility.</p>
11	<p><u>Schedule III – E 11</u></p> <p>The STBs with facilities for recording the programs shall have a copy protection system</p>	<p>Auditor to check and report:</p> <p>a) For STBs having recording facility to internal and/or external storage devices such as USB / Hard Disk drives, auditor should check recorded content plays only on the specific STB where content was recorded.</p> <p>b) Auditor to check that scheduled fingerprint and scroll messaging is displayed even when stored content is played on the STB.</p>

		c) Auditor should confirm that recorded content cannot be played if STB is in de-active state
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8. Timelines under pre-signal/Compliance Audit

- 8.1 Every audit should be ideally completed within three weeks and the proposed suggested timelines under compliance audit are mentioned below.
- 8.2 Audit visit at DPO shall be completed within one week by the auditor excluding the travelling time.
- 8.3 1 to 2 weeks maximum for the analysis of the data and finalization of the audit report.
- 8.4 Auditors are also required to share the relevant queries/observations/anomalies (if any) in brief with DPO in writing after the completion of audit visit.
- 8.5 One week time will also be given to DPO to respond and provide explanation on these issues flagged by auditor.
- 8.6 Auditor will incorporate these explanation/responses if found relevant and satisfactory in its audit report.
- 8.7 In case whether verification and analysis of TS recording and ground VC are also required the auditor may take additional one week for sample verification of the recordings and ground VC samples.

9. Subscription Audit

- 9.1 Regulation 15 of the Interconnection Regulations 2017 specifies that every distributor of television channels shall, once in a calendar year, cause audit of its subscriber management system, conditional access system and other related systems by an auditor to verify that the monthly subscription reports made available by the distributor to the broadcasters are complete, true and correct, and issue an audit report to this effect to each broadcaster with whom it has entered into an interconnection agreement. It may be noted that all the subscription report for each

month with respect to each broadcaster with whom the distributor has signed an agreement will be necessarily required to be checked by the auditor. This audit is generally called subscription audit. The audit fee for such audit will be borne by the distributor. As per sub-regulation (1) of Regulation 15, the annual Audit caused by Distributor shall include the Audit to validate compliance with the Schedule III of the Interconnection Regulations 2017 and the Subscription Audit, as provided for in Interconnection Regulations 2017.

In case of new distributor, before acquiring the content, no such subscription reports would be available for verification. The auditor will duly record this fact and carry on the audit on all other aspects.

- 9.2 The subscription audit's focus is on ascertaining the subscriber numbers being reported by distributors to broadcaster. As per the Interconnection Regulation 2017 any variation, due to audit, resulting in less than zero point five percent of the billed amount shall not require any revision of the invoices already issued and paid.
- 9.3 Therefore, in addition to compliance audit, DPO are required to conduct the subscription audit every year and share the copy of the report with every broadcaster with whom interconnection agreements are signed.
- 9.4 Sub-regulation (2) of Regulation 15 of the Interconnection Regulations 2017 further specifies that in cases, where a broadcaster is not satisfied with the audit report received under sub-regulation (1) of Regulation 15 or, if in the opinion of a broadcaster the addressable system being used by the distributor does not meet requirements specified in the Schedule III, it shall be permissible to the broadcaster, after communicating the reasons in writing to the distributor, to audit the subscriber management system, conditional access system and other related systems of the distributor of television channels, not more than once in a calendar year.
- 9.5 The audit fee for compliance audit or subscription audit commissioned by a broadcaster to re-verify the addressable system requirements, will be payable by the broadcaster.

9.6 In case such audit reveals that additional amount is payable to the broadcaster, the distributor shall pay such amount, along with the interest at the rate specified by the broadcaster in the interconnection agreement, within ten days and if such amount including interest due for any period exceed the amount reported by the distributor to be due for such period by two percent or more, the distributor shall bear the audit expenses, and take necessary actions to avoid occurrence of such errors in the future.

9.7 It may be noted that the scope of subscription audit will be limited to validation of the monthly subscriber report submitted by DPO to the respective broadcaster with whom interconnection agreements are signed.

10. Scope of work under Subscription Audit

10.1 In view of the section 15 of the Interconnection Regulations 2017, the scope of subscription audit will be limited to validation of the monthly subscriber report submitted by DPO to every broadcaster with whom interconnection agreements are signed. However, in order to ensure the sanctity of data certain checks regarding integration of CAS and SMS will also be carried out by the auditor before data extraction.

10.2 Auditor will verify the integration of the CAS and SMS deployed by DPO by performing few simulation tests on sample STBs such as activation/deactivation, fingerprinting and messaging command and generating respective reports from both SMS and CAS. The auditors will then check the SMS and CAS logs also regarding command execution timings to validate the integration between CAS and SMS.

10.3 After verification of integration of CAS and SMS deployed by DPO (or after conducting compliance audit), auditor needs to carry out data extraction from the SMS and CAS as per the scope mentioned below.

- ***Extraction of as on date data dumps from the SMS and CAS server deployed by DPO.***

- ***Analysis on the data dump to verify the 20% random sample weeks of the audit period in respect of monthly subscriber report submitted by DPO to every broadcaster. The auditor is required to verify the MSR data for every pay channel of broadcasters available on DPO's network for these 20% sample weeks selected on random basis by the auditor.***
- ***Analysis on data dumps to verify the as on date active, de-active count of STBs available on the network of DPO.***
- ***Analysis on data dump to report the active STB count on 5 random dates from the audit period other than 7th, 14th, 21st and 28th.***
- ***As on date DPO package wise, a-la-carte and broadcaster bouquet wise STB/VC details (both from SMS & CAS system)***
- ***Verification and reporting of Channel to package mapping along with service ID (with creation, modification and discontinue date) from SMS & CAS of the audit period.***
- ***As on Date Reconciliation of VC and STB from complete CAS and SMS for the date of Audit. Any discrepancy of VC not active in SMS but found active in CAS, excluding test/monitoring VC/STB, or vice versa should be reported in Actual numbers as well as percentage of the total base.***

10.4 Details of test/monitoring VC/STB should be separately recorded.

10.5 Auditor will ensure that no parallel SMS or CAS systems which are not reported by DPO are deployed in the headend of DPO where the audit is being carried out by auditor.

10.6 Auditor will check the transaction logs of the audit period to ensure no manipulation in the logs of CAS and SMS are done by DPO in order to under report the active STB count.

10.7 Reconciliation of LCN and Genre declared by broadcaster with the actual LCN and genre found during Audit. All mismatches of LCN and genres found during audit to be reported.

10.8 Auditor to connect STB to DPO signal in headend and Scroll through all channels and make list of genre wise LCN + Channel name against actual channels seen on the screen and report all mismatches of LCN and genres found during audit.

10.9 Analysis and verification of TS recording/VC samples provided by broadcasters may also need to be covered under scope of work. However, the procedure to be followed for carrying out such analysis and verification are mentioned separately in the section 17 of the audit manual.

11. Documents required under Subscription audit by auditor

11.1 Valid DAS license/ permission issued by Ministry of Information and Broadcasting.

11.2 Block schematic diagram of Headend including CAS and SMS.

11.3 Certificate from all the CAS vendors **(Format as in Annexure 1)**.

11.4 Certificate from SMS vendors **(Format as in Annexure 2)**.

11.5 Signed and stamped copy of subscription audit form as per **Annexure 5**.

11.6 **Monthly SMS report regarding state wise active/de-active STB count for the audit period. This report is applicable for all DPOs.**

12. Methodology to be adopted for Subscription audit

12.1 The audit either will be caused by the DPO or Broadcaster by selecting BECIL or any of the audit agencies empanelled by TRAI.

12.2 Once the audit is scheduled, the auditor will immediately ask DPO whether he has any objections regarding usage of its laptop for the conduct of audit.

12.3 If DPO wants to provide its own laptop for conduct of audit then auditor need to convey its requirement of software or any other tool required during the conduct of audit.

12.4 The DPO shall respond immediately on the same whether he is willing to provide laptop and other necessary tools/software required or wants auditor to use his/her own laptop.

12.5 The minimum configuration requirement of laptop is mentioned in section 19 of the Audit Manual which should be provided by DPO to auditor. DPO is free to provide laptop of higher configuration also.

12.6 The DPO will also be required to inform all the broadcaster regarding the conduct of subscription audit of its DAS system by the auditor along with audit Schedule in case of DPO caused audit.

12.7 The auditor will also share the documents requirements with DPO as specified in Section 11 of the Audit Manual before the conduct of audit.

12.8 Auditor will cover all the scope of work mentioned in section 10 of the audit manual during subscription audit.

12.9 The data extraction procedure from CAS and SMS should be carried out as mentioned in section 16 of the Audit Manual.

12.10 In case of DPO having multiple headends, the auditor is required to conduct subscription audit at these headends separately if any additional CAS or SMS server are deployed at these headends.

12.11 After completion of subscription audit, auditor shall ensure that subscription report w.r.t particular broadcaster only contains relevant information which includes information in respect of his channels and bouquets only. For example, if there are 20 broadcasters with whom interconnection agreements are signed then 20 such broadcaster wise subscription reports are required to be made.

12.12 If the audit is caused by the broadcaster then the auditor will share the audit copies both with broadcaster as well as DPO.

13. Procedure to be followed for inspection of Subscription audit

13.1 The primary objective of the subscription audit is to validate the monthly subscriber report submitted by DPO to its respective broadcasters.

13.2 In this regard, scope of work to be covered and data extraction methodology to be adopted under subscription audit is specified in section 10 and section 16 of the Audit Manual.

13.3 Thus, auditor needs to ensure that the subscription audit should be carried out keeping in view of the scope of work and data extraction procedure mentioned in the Audit Manual.

13.4 The format of the report required under subscription audit is provided in the **Annexure 7** of the audit manual.

13.5 No specific analysis procedure on data dump is specified here and auditor is free to choose its own analysis method, tools, software to achieve the desired result.

14. Scheduling of Subscription Audits

a) All the DPO are required to conduct the subscription audit within calendar year as mandated by Interconnection Regulation 2017. Further the first subscription audit under this framework will be from the date of coming into effect of the framework, but not later than 1st April 2019. The annual Audit as caused by Distributor under regulation 15 (1) shall be scheduled in such a manner that there is a gap of at-least six months between the audits of two consecutive calendar years. Further, there

should not be a gap of more than 18 months between audits of two consecutive calendar years.

- b) Post first subscription audit, the DPO (in case of DPO caused subscription audits) may conduct the subscription audit of the unaudited period.
- c) If the audit is caused by the broadcaster, then he/she can request auditor to conduct the audit of a maximum of previous 2 years from the date of audit even if the audit of such period is conducted by the DPO. Provided that the audit under this framework will be from the date of coming into effect of the framework, but not later than 1st April 2019.

15. Timelines for completion of Subscription Audits

- a) The auditors are required to complete the subscription audit and submission of report within 4 weeks from the date of first visit of DPO with subscriber base above 5 lakhs.
- b) The auditors are required to complete the subscription audit and submit report within 3 weeks from the date of first audit visit of DPO with subscriber base below 5 lakhs.
- c) In case where verification and analysis of TS recording and ground VC are also required the auditor may take additional one week for sample verification of the recordings and ground VC samples.

16. Data Extraction procedure to be followed by auditor under compliance and subscription audit

- 16.1 DPO to declare all admin/super admin login access to CAS & SMS servers and will depute a resource who has complete knowledge of the systems (CAS and SMS). The resource can be common or different for CAS and SMS systems depending upon his/her expertise.

- 16.2 The DPO resource under supervision of auditor will take the access in both systems and extract data and run queries.
- 16.3 Auditors are not allowed to interfere with the live systems (CAS and SMS) of DPO without its permission and assistance.
- 16.4 If the extraction from the live SMS and CAS systems are not possible due to any technical issue or taking excess time in extraction then auditor are allowed to use latest automated or manually downloaded dump data from the server after due verification of the query used for downloading the same.
- 16.5 If the auditor is satisfied with the procedure of downloaded data dump and finds that the dump is not compromised or altered, he/she may use the same for audit purpose.
- 16.6 *Note: The exemption of data extraction from live servers is only applicable for DPO who are having more than 5 lakhs subscriber base and when there is practical difficulty is extracting the data dump from live servers. This will be decided by auditor after understanding the systems of such DPOs and in case they find explanations relevant.***
- 16.7 The DPO is also requested to share the database structure table's fields and column along with other necessary information required by auditor to work on the data dump in order to extract the active /de-active STB/VC count from the data dump.
- 16.8 If required, all extracted data should be loaded on PC/ Laptop provided for Audit.
- 16.9 All data from CAS and SMS server should be extracted in such a manner that no STB/VC is left out from the database. The Auditors should acquaint themselves with the data extraction queries that are run on the live CAS & SMS servers.
- 16.10 Data extraction queries scripts and explanation of terminology used must be preserved.

16.11 The auditor should understand what all filters (if any) are being applied to either exclude data of other DPOs, or even exclude data of certain geographical areas that may have a bearing on the overall count of the subscriber numbers.

16.12 Auditor should be present in-person during the extraction of CAS & SMS data. Auditor to certify that the Data extraction has been done under his/her supervision.

17. Analysis and Verification of TS recordings/ VC samples

17.1 If the audit is caused by the DPO whether compliance or subscription audit then the information regarding the schedule/conduct of audit along with audit agency will need to be shared with broadcasters at least 30 days before the conduct of audit.

17.2 The broadcasters may provide the TS recordings or ground VC (if any) to auditors for verification and analysis of the TS recordings and VC samples before the conduct of audit.

17.3 If the audit (whether compliance or subscription audits) is caused by broadcaster then broadcaster can directly share the information regarding TS recordings or VC samples (if any) with the audit agency.

17.4 The analysis and verification of TS recordings shall be carried out as per following procedure:

- The broadcaster cannot share more than 5 TS recordings and 100 VC samples with auditor in case the audit is caused by DPO. In case the audit is caused by broadcaster there is no restriction on sample size of TS/VC recordings. Broadcaster should ensure that these TS recordings and VC samples are correct and should be provided with date, time and complete address/location details.
- The auditor should verify these TS recordings and VC samples during conduct of audit. In case he/she is not able to find some VC samples in the CAS and

SMS database of DPO and TS recordings parameters also have some variation w.r.t TS recordings of headend than random physical verification of such VC samples and TS recordings also should be carried out by auditor in order to validate the shared VC samples/recordings.

- In such cases where a certain amount of VC samples provided by broadcasters are not found in the CAS and SMS database of DPO then auditor will select minimum five (5) number of VC samples from these VC samples and one (1) TS recordings on random basis for carrying out physical verification in order to ensure the correctness of samples.
- The cost of carrying out minimum physical verification of these TS recordings and VC samples which are not found in the DPO system shall be borne by the DPO if the audit is caused by DPO.
- Further, any physical inspection cost during audit caused by broadcaster shall be borne by broadcaster however 6 minimum (5 VC samples and 1 TS) physical inspection needs to be carried out by auditor in order to validate the TS recordings and VC samples which are not found/matched in the system of DPO.
- It may be noted that it should be the responsibility of broadcaster to provide necessary assistance and support to auditor during physical verification of TS recording and ground samples whenever validation of such VC samples and TS recordings are required.

18. Responsibilities in respect of Compliance and Subscription Audit

A. Distribution Platform Operator

- 1) The DPO should abide by the provisions of Interconnection Regulation 2017 w.r.t. provisions related to Audit.
- 2) The DPO should ensure all the compliance of the Digital Addressable System (CAS, SMS and STB) as per Schedule III of Interconnection

Regulation 2017 and cause the compliance audit and the subscription audit of its system every calendar year.

- 3) Every DPO shall ensure the availability of complete data in CAS and SMS for minimum 2 years from the date of conduct of audit.
- 4) It is the responsibility of DPO having shared CAS and SMS systems with its JV companies to share the complete data from SMS and CAS including JV companies data with auditor during compliance or subscription audit whether caused by DPO or broadcaster. Thus, it would be advisable for such DPO to conduct audit of its complete DAS system including JV companies.
- 5) The DPO shall timely inform the broadcasters whenever compliance or subscription audit is scheduled at least 30 days in advance.
- 6) The DPO will share the relevant part of the report of the compliance audit and subscription audit caused by DPO with concerned broadcaster.
- 7) If the subscription audit of DPO reveals more than zero point five percent variance in the monthly subscription report submitted by DPO of any broadcasters then it is the responsibility of the DPO to inform those broadcasters regarding revision of the invoices already issued and paid.
- 8) The DPO will provide full support and assistance to auditor conducting its audits whether caused by self or broadcaster.
- 9) If the DPO does not want auditor to use his laptop for audit purpose then it is the responsibility of DPO to provide laptop of configuration as mentioned in the audit manual or higher to auditor. The specification in respect of minimum configuration of laptop to be provided by DPO is mentioned in section 19 of the Audit Manual.
- 10) The DPO also needs to ask auditor about any other specific requirements in advance regarding the software or tools required for data analysis purpose before the commencement of audit.

- 11) These requirements shall be available to auditor at his disposal for usage during the conduct of audit whether audit caused by self or broadcaster.
- 12) DPO should inform broadcaster if below mentioned changes are made in its CAS, SMS and other related systems within 7 days from the implementation date of these changes:
- a. Addition/Deletion of SMS**
 - b. Change in the SMS version w.r.t last audited SMS**
 - c. Addition/Deletion of CAS**
 - d. Change in the CAS version w.r.t last audited CAS**
 - e. Deployment of new type of STBs by DPO which were not audited earlier.**
- 13) Subject to conformance to Regulation 11, the distributor may extend territory of interconnection agreement by giving a written notice to the broadcaster providing at least 30 days to the broadcaster. In such cases, the distributor shall also inform the Broadcaster formally after 7 days of actual extension of the territory.
- 14) DPO should provide access to CAS, SMS servers and related addressable system to the auditor and depute a resource/expert of deployed CAS and SMS systems who will perform data extraction under supervision of auditor.
- 15) Auditor can demand specific data, logs and reports and the DPO should extract the data in front of the auditor and provide the same. DPO should ensure that no STB/VC is left out from the database.
- 16) The DPO should also allow Broadcaster's representative in case of audit initiated by Broadcaster's to be physically present during the conduct of audit.

B. Responsibility of Broadcaster

- 1) The Broadcaster should abide by the provisions of Interconnection Regulation 2017 w.r.t. provisions related to Audit.
- 2) The broadcaster should ensure that the correct TS recordings and ground VC samples (if any) are provided to auditors before conduct of audit whether compliance or subscription audit.
- 3) The broadcaster should also provide full support to auditor and provide necessary information if required by auditor such as fingerprint schedule, assistance in physical verification of sample TS recordings/ground VC samples etc.
- 4) During the audit initiated by broadcaster the representative of broadcaster will not interfere with the audit proceedings during the conduct of audit. If there are any relevant concerns or objections the same shall be shared before the conduct of audit.
- 5) If the audit is caused by the broadcaster then the broadcaster is not allowed to send more than two representatives to observe the audit proceedings.

C. Responsibility of Auditor

- 1) The auditor should abide by the provisions of Interconnection Regulation 2017 w.r.t. provisions related to Audit and the terms and conditions of the empanelment by TRAI.
- 2) The Auditors' main role and responsibility is to carry out the above mentioned compliance and subscription audits in an objective, transparent and impartial manner as per provisions of Interconnection Regulations 2017.

- 3) It is the responsibility of auditor to keep all the data extracted or information collected during audit confidential and produce only the relevant information in the audit report.
- 4) In case the TS recordings and ground VC samples are provided by broadcasters then auditor should verify whether these TS recordings reconcile with headend TS recordings and VC samples are also available in the CAS and SMS database of DPO.
- 5) If the TS recordings parameters are different from those recorded at headend and shared VC samples are not found in the CAS and SMS system of DPO then auditor will also carry out the physical verification of minimum 5 VC samples and 1 TS recordings in order to check the authenticity of same. These 6 samples (5 VC and 1 TS) shall be selected on random basis from the list of samples/TS which were not found in the system of DPO.
- 6) **The subscription audit period shall not be more than 18 months in case the audit is caused by DPO and 24 months if the audit is caused by broadcaster.**
- 7) The auditor will not carry any data dump outside the DPO premises without his consent. If DPO is not comfortable with providing data dump to auditor for data analysis purposes then auditor shall perform all the data analysis whether under compliance or subscription audit at DPO premises only.
- 8) In such cases, the auditor only will be allowed to carry the result of data analysis along with other necessary documents such as screenshot of queries run, CAS and SMS generated reports and audit related documents (audit forms, vendor declarations, annexures etc.). The auditor will also provide a copy of these documents to DPO.
- 9) The auditor should not enter into any arguments or dispute with DPO during conduct of audit. If there are any issues or non-cooperation from DPO during

audit the auditor shall inform the DPO in writing that the audit could not be conducted.

- 10) If auditor feels any justification or explanation is required from DPO on any particular issue observed during the conduct of audit w.r.t compliance or subscription audit, he/she may provide the opportunity to DPO before the finalization of audit report. The justification or explanation of DPO shall also be incorporated in the audit report along with the issue observed by the auditor.
- 11) The auditor will not insist on the specified format of the reports generated from the SMS and CAS systems as mandated in Schedule III of Interconnection Regulations 2017 or any other report to be generated under scope of work of audit manual. However, the report should be able to reflect and produce desirable information.
- 12) The auditor will make non-editable soft copy and hard copy of the audit report both for compliance and subscription audit. Further, number of copies of subscription audit report caused by DPO depends upon the number of broadcasters with whom interconnection agreements are signed by DPO.
- 13) In case the DPO is non-compliant to any of the provisions of extant regulation(s) then it is the responsibility of auditor to clearly mention the same in its report. TRAI should be duly informed of such non-compliance(s) within twenty-one days of conduct of Audit.
- 14) The Auditor shall comply with all the instructions, guidelines, directions, orders etc. issued by TRAI, from time to time, for the purpose of conducting the audit of the Digital Addressable Systems of the Service Providers and reporting thereof. TRAI officials may also associate with the Auditor in the conduct of such audit and the Auditor shall carry out instructions, if any, given by such officials in writing.

- 15) The Auditor shall not undertake audit of addressable system of any service provider for whom the Auditor is also the statutory auditor or internal auditor or concurrent auditor or where the Auditor is the consultant to the service provider.
- 16) The Auditor shall not undertake audit of the addressable system of any service provider consecutively for more than three years.
- 17) The Auditor shall submit the report to TRAI about the details of audits carried out by the Auditor, as per the format prescribed by TRAI from time to time.
- 18) In case the Auditor observes any major discrepancy in the Digital Addressable Systems of the service provider during audit, the Auditor shall report the same to TRAI immediately.
- 19) TRAI reserves the right to review, dissolve the panel of Auditors, extend the validity of the panel, expand the panel and remove any Auditor from the panel for unsatisfactory performance, at any time.
- 20) TRAI may remove any Auditor from the panel of empanelled auditors, in case, it is established that the Auditor have performed two wrong audits.
- 21) The Auditor shall continue to meet all the eligibility conditions specified in the Expression of Interest for Empanelment of Auditors to carry out audit of Digital Addressable Systems, throughout the period of empanelment. The Auditor must immediately inform TRAI in case the Auditor fail to meet any of the eligibility criteria specified, at any time during the period of empanelment so that TRAI may remove the Auditor from the list of empaneled auditors. In case the Auditor do not inform, and it comes to the notice of TRAI through any source at a later date then TRAI may blacklist such auditor forever and forfeit performance bank guarantee and issue press release in this regard.

- 22) The Auditor shall adhere to the scope of work given in the Expression of Interest and shall follow the Comprehensive Audit Manual which TRAI may prescribe.
- 23) The Auditor and their staff/audit personnel must carry out the tasks with the highest degree of professional integrity and technical competence. They must be free from all pressures and inducements, particularly financial, which might influence their judgment or the results of any assessment, especially from persons or groups of persons with an interest in such results.
- 24) The Auditor must guarantee the impartiality of inspection staff/audit personnel. Their remuneration must not depend on the number of assessments carried out or on the results of such assessments.
- 25) In case of any misconduct or negligence; TRAI is free to report the matter at any time to any Government agency or department/statutory body/ICAI/ICWAI or any other concerned professional body.
- 26) The Auditor shall maintain confidentiality as mentioned in the EOI.
- 27) The Auditor shall maintain, at all times during its period of empanelment, necessary office set up and adequate personnel to ensure proper deployment and timely completion of the assignments.
- 28) The Auditor shall not sub-contract the audit work assigned to the Auditor to any outside firm or other persons.
- 29) In case any information/documents submitted by the Auditor, whether at the time of submission of proposal or thereafter, to TRAI is found to be incorrect or false or misleading, the Auditor shall be removed from the panel immediately. In addition, the audit agency and the professionals will be liable for appropriate action in accordance with statutory guidelines or professional rules.
- 30) TRAI reserves the right to remove the Auditor from the panel in case it is found that any of the conditions laid down in the Expression of Interest have

been contravened or the performance of the auditor is found to be unsatisfactory or any serious act of omission or commission is noticed in the Auditor's working. In such a case the Auditor will be blacklisted for empanelment with TRAI for a period of two years. If felt necessary, the matter may be reported to ICAI and/or RBI/IBA/ICSI/ICWAI/BCI or any other concerned professional body for necessary action.

- 31) TRAI may call the Auditor for meetings/ presentation for seeking/ providing clarifications or for reviewing the progress of audit. The Auditor shall attend such meetings/ presentation at its own expenses.
- 32) The Auditor shall indemnify and hold TRAI harmless against any and all claims, demands, disputes or judgment of any nature brought against TRAI arising out of the services provided by the Auditor to the service provider under this agreement. TRAI shall be entitled to get the monetary loss suffered by it, if any, reimbursed from the Auditor. TRAI may also, at its discretion, remove the Auditor from the panel in such circumstances, without prejudice to the Auditor's obligation under this clause, which shall survive the Auditor's removal from the panel.
- 33) In case of disputes/ clarifications arising out of EOI, the decision of TRAI shall be final and binding on the Auditor.
- 34) The Auditor shall comply with and be governed by the laws of India for the time being in force.

19. Minimum Laptop Configuration to be provided by DPO

Particulars	Subscriber base > 50 Lakhs	Subscriber base between 10 Lakh to 50 Lakh	Subscriber base between 1 Lakh to 10 Lakh	Subscriber base less than 1 Lakh
Processor	Intel® Core™ i7	Intel® Core™ i5 or i7	Intel® Core™ i5 or i7	Intel® Core™ i5 or i7
Hard Disk Space available in C drive	1 TB or above	500 GB or above	500 GB or above	100 GB or above
RAM	16 GB or above	16 GB or above	8 GB or above	8 GB or above
Partition in drive	No partition required in the drive, need a single drive	No partition required in the drive, need a single drive	Not Applicable	Not Applicable
Data source location (Local/Server)	RDP	Local or RDP	Local	Local
Operating System – 32 bit / 64 bit	Windows 64bit	Windows 64bit	Windows 64bit	Windows 64bit
Microsoft SQL Server Management Studio & SQL Server Data Tools (SSDT)	Microsoft SQL Server developer edition	Microsoft SQL Server developer edition	Microsoft SQL Server developer edition/Microsoft Access	Microsoft SQL Server Express/ developer edition, Microsoft Access, Microsoft Excel
	(not Express edition)	(not Express edition)	(not Express edition)	Express edition /Developer
	(any year version of 2012 / 2014 /2016 /2017)	(any year version of 2012 / 2014 /2016 /2017)	(any year version of 2012 / 2014 /2016 /2017)	(any year version of 2012 / 2014 /2016 /2017)
	Complete suite of SSDT or Visual Studio Professional	Complete suite of SSDT or Visual Studio Professional	Complete suite of SSDT or Visual Studio Professional	Complete suite of SSDT or Visual Studio Professional
Data source format	.csv or .txt	.csv or .txt	.csv or .txt	.csv or .txt /excel (.xlsx, .xls)

20. Formats of Annexures and Reports

Annexure 1

Format of declaration from CAS Vendor

(On CAS company letterhead)

TO WHOMSOEVER IT MAY CONCERN

This is to certify that M/s _____ (DPO Name) _____ address: _____

_____ having its DAS headend at _____ has installed Conditional Access System (CAS) from our company for its distribution network.

Date of CAS Installation and operational: _____ CAS Version: _____

CAS ID: _____, Network ID: _____

Location of CAS servers (Database server, ECMG, EMMG): _____

Detail of main and back up CAS servers installed: _____ -- _____

Server time format: _____

Database detail: _____

Attached schematic diagram of CAS network including ECMG/EMMG & other servers installed in headend/remote/back up headend.

With respect to the CAS installed at above mentioned headend and in terms of Schedule-III of THE TELECOMMUNICATION (BROADCASTING AND CABLE) SERVICES INTERCONNECTION (ADDRESSABLE SYSTEMS) REGULATIONS, 2017 of TRAI, we confirm the following:

- 1) All activation and deactivation of STBs can be done with the commands of the SMS. – CAS certificate to be in two parts – DPO and CAS vendor
- 2) The current version of CAS does not have any history of hacking.
- 3) We have the capability of upgrading of CAS in case it gets hacked.
- 4) The CAS is currently in use by other pay TV services and it has an aggregate of at least 1 million subscribers in the global pay TV market.
- 5) It is not possible to alter the data and logs recorded in the CAS.
- 6) That all the CAS system provided to the said distributor at all the locations (head-ends) have been duly reported explicitly.
- 7) We, the CAS system provider are able to provide monthly and date wise log of activation and deactivation on a particular channel or on a particular Bouquet / Subscriber Package.
- 8) This CAS is capable of individually addressing subscribers, on a channel by channel and STB by STB basis.

- 9) This CAS is independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the CAS including but not limited to activation and deactivation commands issued by the SMS.
- 10) The CAS has the capability of upgrading STBs over-the-air (OTA), so that the connected STBs can be upgraded.
- 11) The CAS has the capacity to activate or deactivate services or STBs of at least 5% of the subscriber base of this customer's distribution network within 24 hours.
- 12) That we _____(CAS Company Name) are fully compliant to the requirements of CAS system as per schedule III of the of THE TELECOMMUNICATION (BROADCASTING AND CABLE) SERVICES INTERCONNECTION (ADDRESSABLE SYSTEMS) REGULATIONS, 2017 of TRAI.

I __(_name)_____ undertake that the information provided above is true and full disclosure of all the CAS system(s) provided to the said distributor has been made above and no information has been concealed.

Thanking you,

For (CAS company name)

(Signature)

Name :

Designation : (not below the level of COO or CEO or CTO)

Date :

Company seal:

Date: (within 30 days prior to audit)

Annexure 2

Format of declaration from SMS Vendor

(On SMS Company Letter Head)

Date:

TO WHOMSOEVER IT MAY CONCERN

This is to certify that M/s _____,
address: _____
having its DAS headend at _____
has installed Subscriber Management System (SMS) from our company for its distribution
network.

Date of installation of SMS: _____ SMS Version: _____

Location of SMS servers: _____

SMS Database detail with number of instances created: _____

Please find enclosed the schematic diagram of SMS and CAS system(s) integration.

With respect to the SMS installed at above mentioned headend and in terms of Schedule-III of THE TELECOMMUNICATION (BROADCASTING AND CABLE) SERVICES INTERCONNECTION (ADDRESSABLE SYSTEMS) REGULATIONS, 2017 of TRAI, we confirm the following:

1. The SMS is currently in use by other pay TV services that have an aggregate of at least 1 million subscribers in the global pay TV market (wherever applicable)
2. The SMS has the capacity to activate or deactivate services or STBs of at least 5% of the subscriber base of the distributor within 24 hours.
3. We have the technical capability in India to be able to maintain our systems on 24x7 basis through the year.
4. We, the SMS system provider are able to provide monthly and date wise log of activation and deactivation on particular channel or on a particular Bouquet / Subscriber Package with date/time stamp.
5. The SMS is capable of individually addressing subscribers, on a channel by channel and STB by STB basis.
6. This SMS is independently capable of generating log of all activations and deactivations.

7. The SMS is independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the SMS including but not limited to activation and deactivation commands. (as per period of service)
8. Please find enclosed sample log of activations & deactivations of a channel generated from this SMS system.
9. That we _____(SMS Company Name) are fully compliant to the requirements of SMS system as per schedule III of the of THE TELECOMMUNICATION (BROADCASTING AND CABLE) SERVICES INTERCONNECTION (ADDRESSABLE SYSTEMS) REGULATIONS, 2017 of TRAI.

I __(_name)_____ undertake that the information provided above is true and full disclosure of all the SMS system(s) provided to the said distributor has been made above and no information has been concealed.

Thanking you,

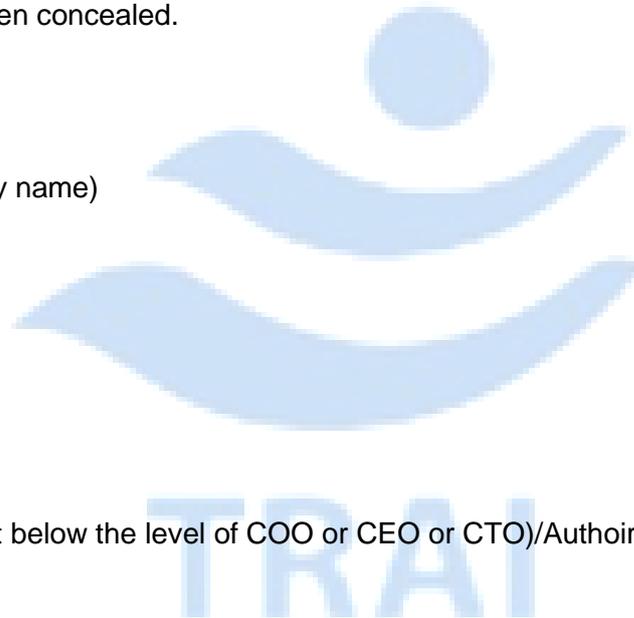
For (SMS company name)

(Signature)

Name :

Designation : (not below the level of COO or CEO or CTO)/Authoized signatory

Company seal :



Annexure 3

Format of Audit form to be filled in by DPO (Compliance Audit Form)

On DPO Letter Head

Type of DPO: CATV/HITS/IPTV/DTH		Date :				
Address of the headend						
Headend technical person :Contact No.						
1	No..of SD & HD Channels presently running in the network		FTA	PAY	TOTAL	Total no. of Transport Stream
		SD				
		HD				
Sl. No.	CAS Make	Version	For Software based (Cardless)			Server Location
			Encryption Strength	Key Length	Video Scrambling	
1						
2						
Sl. No.	SMS Make	Version	Date of Installation		Server Location	
1						
2						
Sl. No.	STB Make	Model	(HD, SD, PVR)	MPEG 2/4	Card/ Cardless	Embedded CAS Name
1						
2						
3						
4						
5						
A) Conditional Access System (CAS) & Subscriber Management System (SMS)			Yes/No			
1	Is the SMS computerized and capable to record the vital information and data concerning the subscribers such as:					
	a. Unique Customer Id					
	b. Subscription Contract number					
	c. Name of the subscriber					
	d. Billing Address					
	e. Installation Address					
	f. Landline telephone number					
	g. Mobile telephone number					

	h. Email id		
	i. Service/Package subscribed to		
	j. Unique STB Number		
	k. Unique VC Number		
2	Is the SMS able to undertake the following:		
	a. Viewing and printing historical data in terms of the activations, deactivations etc.		
	b. Location of each and every set top box VC unit		
	c. Generating historical data of changes in the subscriptions for each subscriber and the corresponding source of requests made by the subscriber.		
	i. The total number of registered subscribers.		
	ii. The total number of active subscribers.		
	iii. The total number of temporary suspended subscribers.		
	iv. The total number of deactivated subscribers.		
	v. List of blacklisted STBs in the system.		
	vi. Channel and bouquet wise monthly subscription report in the prescribed format.		
	vii. The names of the channels forming part of each bouquet.		
	viii. The total number of active subscribers subscribing to a particular channel or bouquet at a given time.		
	ix. The name of a-la carte channel and bouquet subscribed by a subscriber.		
	x. The ageing report for subscription of a particular channel or bouquet.		
3	Are SMS and CA integrated for activation and deactivation process from SMS to be simultaneously done through both the systems? Is the CA system independently capable of generating log of all activation and deactivations?		
4	Are SMS & CAS capable of individually addressing subscribers, on a channel by channel and STB by STB basis?	CAS	SMS
5	For VC based CAS, is the STB & VC paired from head-end to ensure security?		
6	Is CAS system provider able to provide monthly log of the activations on a particular channel or on the particular package?		
7	Is SMS able to generate itemized billing such as content cost, rental of the equipments, taxes etc?		
8	Do CAS & SMS have provision to tag and blacklist VC numbers and STB numbers that have been involved in piracy in the past to ensure that the VC or the STB cannot be redeployed?	CAS	SMS
9	Is CAS able to provide reports at any desired time about:		

	a. Active and De-active VC wise details as on any particular date					
	b. STB-VC Pairing / De-Pairing c. STB Activation / De-activation d. Channels Assignment to STB e. Report of the activations or the deactivations of a particular channel for a given period.					
10	Is CAS & SMS able to provide reports at any desired time about:	CAS		SMS		
	a. VC wise log of changes in packages/channels for any particular period					
	b. Logs of creation and modification of packages for any particular period					
12	Total No. of STBs deployed in the network presently?	In field SD: In field HD:				
B) Fingerprinting & Scroll messaging		STB1	STB2	STB3	STB4	STB5
Yes/No						
1	Is FP Facility available (ECM/EMM) a. Visible (Overt)					
	b. Invisible (Covert)?					
2	Is the finger printing removable by pressing any key on the remote control / front panel of STB?					
3	Is the fingerprinting on the topmost layer of the video?					
4	Can the Finger printing identify the unique STB number or the unique Viewing Card (VC) number?					
5	Does fingerprinting appear on all the screens of the STB, such as Menu, EPG etc.?					
6	Is the location of the Finger printing changeable from the Headend and random on the viewing device?					
8	Is finger printing possible on global STB basis?					
	Is finger printing possible on individual STB basis?					
9	Is overt finger printing displayed by the MSO without any alteration with regard to the time, location, duration and frequency.					
10	Is the STB capable of doing finger printing and support Entitlement control message (ECM) based finger printing?					
	Is the STB capable of doing finger printing and support Entitlement management Message (EMM) based finger printing?					
11	Is the scroll messaging character length 120 or more?					
12	Does STB has forced messaging capability?					
13	Is there provision for the global messaging, group messaging and the individual STB messaging?					
D) STB		STB1	STB2	STB3	STB4	STB5
Yes/No						
1	Is Valid BIS certificate of each model of STB available?					
2	Does the STBs with facilities for recording the programs have copy protection system?					

3	Is STB addressable to be upgraded by OTA?					
4	Watermark of the network logo is Encoder or STB generated?					

I __(_name)_____ undertake that the information provided above is true and full disclosure of all the CAS and SMS system(s) and STB has been made above and no information has been concealed.

DPO Signature

(Signature)

Name :

Designation : (not below the level of COO or CEO or CTO)/Authorized signatory

Company seal :



Format of declaration from STB Vendor

(On STB company letterhead)

TO WHOMSOEVER IT MAY CONCERN

This is to certify that M/s _____ (DPO Name) _____ address: _____

_____ having its DAS headend at _____ has procured below mention STB model no from our company for its distribution network.

S. no	STB Model no	BIS Compliant (yes/No)	Date of BIS Certificate

All the STB deployed/purchased by DPO are in compliance to Schedule-III of THE TELECOMMUNICATION (BROADCASTING AND CABLE) SERVICES INTERCONNECTION (ADDRESSABLE SYSTEMS) REGULATIONS, 2017 of TRAI w.r.t STB requirements as mentioned below:

1. All STBs should have a Conditional Access System
2. The STB should be capable of decrypting the Conditional Access messages inserted by the Head-end.
3. The STB should be capable of doing fingerprinting. The STB should support both Entitlement Control Message (ECM) and Entitlement Management Message (EMM) based fingerprinting.
4. The STB should be individually addressable from the Head-end.
5. The STB should be able to receive messages from the Head-end.
6. The messaging character length should be minimal 120 characters.
7. There should be provision for global messaging, group messaging and the individual STB messaging
8. The STB should have forced messaging capability including forced finger printing display.
9. The STB must be compliant to the applicable Bureau of Indian Standards
10. The STBs should be addressable over the air to facilitate OTA software upgrade.
11. The STBs with facilities for recording the programs shall have a copy protection system

I __(_name)_____ undertake that the information provided above is true and full disclosure of all the STB(s) provided to the said distributor has been made above and no information has been concealed.

Thanking you,
For (STB company name)

(Signature)

Name :

Designation : (not below the level of COO or CEO or CTO)

Date :

Company seal:

Date: (.....)



Annexure 5

Format of subscription audit form (Letter head of DPO)

S.No	Area	Data requested	DPO Response
1	Head End	General Details	
1.1	Details	Headend Location	
1.2		Date of establishment of the Headend	
1.3		Number of digital headend/sub Headends with encryption details and areas covered	
2		Hardware Details (if it is not covered in network diagram of all DHE's)	
2.1		Details of IRD's with make & model number	
3		Others	
3.1		Local Channel detail:(number of local channels)	
3.2		Is a unique LCN defined for each channel(Service ID)	
3.3		Encryption:	
3.4		Transport streams:	
3.5		Number of Transport Streams	
3.6		Watermarking:	
3.7		Is watermark inserted? If yes, from where?	
4		Features	
4.1		Make & version number	
4.2		Types of STB's used with make, model number & compatibility with CAS	
4.3		STB-VC ID Pairing details if applicable	
4.4		Modules in SMS & the activities performed for each of the module	
4.5		Audit/trail/log of all changes for all changes made to the customer account & STB	
4.6	Subscriber Management System (SMS)	Channels to package mapping	
4.7		Fingerprinting (STB wise, Group/All)	
4.8		Messaging (STB wise, Group/All)	
5		Reporting	
5.1		Is reporting module configured to extract the following reports:	
5.2		As on historical date, count and details of STB status (active/de-active) as per the system	
5.3		Count and details of Activation/ deactivation of STBs for a defined period	
5.4		STB/Account wise Package modification report for a defined period	
6	Conditional Access System (CAS)	Features	
6.1		Number of CA systems installed at the headend & the version of each	

6.2	Number of channels configured on each CAS	
6.3	Channel(SID) to package/product mapping	
6.4	Fingerprinting (STB wise, Group/All)	
6.5	Messaging (STB wise, Group/All)	
6.6	Audit/trail/log of all changes for each CAS	
7	Reporting	
7.1	Is reporting module configured to extract the following reports:	
7.2	As on historical date, count and details of active STB status as per the system	
7.3	Activation and deactivation log for each STB/ VC Id	
7.4	Activation and deactivation log of channels and packages for each STB/ VC ID	

Undertaking

I __(_name)_____ undertake that the information provided above is true, full and complete disclosure of all the CAS and SMS system(s) and STB has been made above and no information has been concealed.

(Signature)

Name :

Designation : (not below the level of COO or CEO or CTO)/Authoized signatory

Company seal :

TRAI

Compliance Report of
Addressable System of

M/s _____

for conformity to Schedule III of
Interconnection Regulation 2017



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INTRODUCTION AND BACKGROUND

Background of the DPO

[

Background on the DPO organization.

Brief detail of the business operation and experience on the cable TV distribution.

Details regarding the expansion of the DPO services

Annexure: Copy of valid license/ permission from MoI&B

]

Terminologies used in Audit Report

[

Explanation of terms used in the report but are not part of the Act/ Rules/ Regulations/ Guidelines

]

Headend Architecture

[

Explanation on the entire infrastructure of the DPO including Disaster Recovery Site for the operations.

Explanation of the following processes:

- i. Content Reception*
- ii. Content Proccession*
- iii. Encryption details*
- iv. Monitoring setup*
- v. Content reception at consumer premises*

Annexure: Copy of Headend Schematic Diagram

]

Details of Broadcaster's IRD(s)

[

List of Broadcaster's IRDs present at the headend and their operational status

]

Details of CAS(s)

[

Details of the CAS(s) installed

Detail of the licensed/authorized VC/STBs available in the respective CAS(s)

]

Details of SMS(s)

[

Details of the SMS(s) installed

Detail of the SMS(s) installed with the respective CAS(s)

]



Detail of the Signal Processing Systems

[

Details w.r.t. configurations of the following hardware in the network (at main/ satellite / remote headends)

- i. EMM Servers*
- ii. ECM Servers*
- iii. Scramblers*
- iv. QAM*
- v. Multiplexers*
- vi. PSI/ SI servers*
- vii. Fiber transmitters*

]

LCN wise service details

[

List of the LCN-wise channels present on the EPG as well as content available on the screen (to be checked and recorded after assigning all the available services to the test STB)

]

Package Configuration

[

- i. Package-wise list and detail of services configured in SMS(s) for entire period of audit*
- ii. Package-wise list and detail of services configured in CAS(s) for entire period of audit*

]

Network Architecture

[

Annexure: Copy of Network Diagram w.r.t. Main Headend and Satellite/ Remote Headends

]

Set Top Box Management Process

[

Detail of the STB management system w.r.t. following:

- i. Authorization process of STB/ VC in CAS,*
- ii. Transfer of STBs/VCS from DPO to LCO and LCO to consumer*

Annexure: Flow Chart of the STB Management

]

Consumer Acquisition Process

[

Detail of the consumer acquisition process including allocation of the STB/VC, pairing of STB-VC and activation of packages/ services on the STB

Identification process of each STB in cases when multiple STB are assigned to single consumer

Annexure: Flow Chart of the Consumer Acquisition Process

]

Data Management Process

[

Explanation of the system and procedure adopted by DPO for management of the data from CAS and SMS deployed for the headend

Explanation may include details regarding:

- i. Servers*
- ii. Backup server/ Mirror server*
- iii. Reporting servers*
- iv. Etc.*

]



METHODOLOGY ADOPTED FOR COMPLIANCE AUDIT

[

Section will provide details of the audit team(s) and explanation of the procedure for compliance audit.

]



AUDIT DETAILS

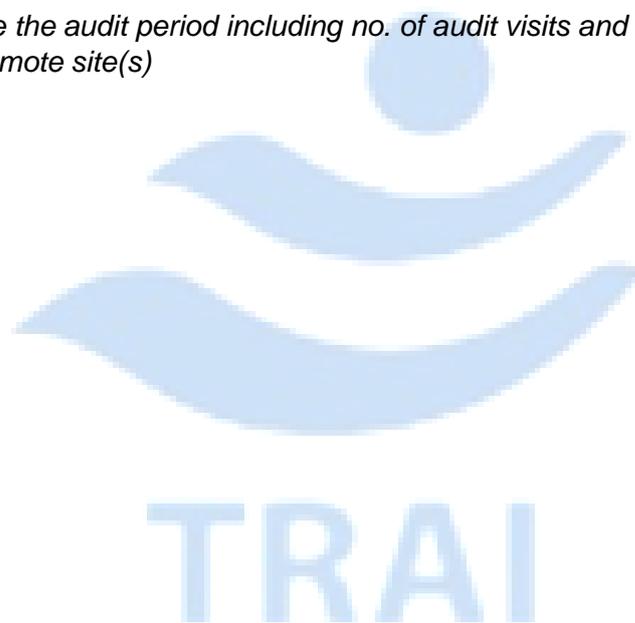
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Audit Period & Locations

[

Section will provide the audit period including no. of audit visits and duration of each visit and details of visit at remote site(s)

]



SCHEDULE III COMPLIANCE REPORT

[]

Compliance Report for CAS & SMS

[

Section will cover point-wise compliance for the requirements w.r.t. CAS & SMS specified in the Schedule-III of the Interconnection Regulations 2017

(Ideally in tabular form)

]

Compliance Report for Finger Printing

[

Section will cover point-wise compliance for the requirements w.r.t. fingerprinting specified in the Schedule-III of the Interconnection Regulations 2017

(Ideally in tabular form)

]

Compliance Report for STB

[

Section will cover point-wise compliance for the requirements w.r.t. STB specified in the Schedule-III of the Interconnection Regulations 2017

(Ideally in tabular form)

]



AUDITOR'S OBSERVATIONS

[

Section will cover point-wise explanation for any-compliance parameter OR any deviation OR any abnormality in the Addressable System w.r.t. the requirements specified in the Scope of work in the Audit Manual

(Ideally in tabular form)

Scope of Work	Status/ Observations
IP configuration to confirm and identify servers and mux deployed	
Inventory details of the Broadcasters IRDs+ VCs	
MUX configuration to validate number of Transport Streams ("TS")	
Details of QAM installed in the network	
Record of PSI/ SI servers (for EPG and LCN)	
Watermarking provisions	
Encryption status of the channels/ services	
Compliance Status of the CAS & SMS	
Compliance Status of the Fingerprinting	
Compliance Status of the STBs deployed	
Analysis of TS / VCs	

]

AUDITOR'S OPINION & CONCLUSION

[

Section will provide the auditor's opinion and conclusion for the addressable system deployed by the DPO

]



ANNEXURES OF PRE-SIGNAL/COMPLIANCE AUDIT REPORT

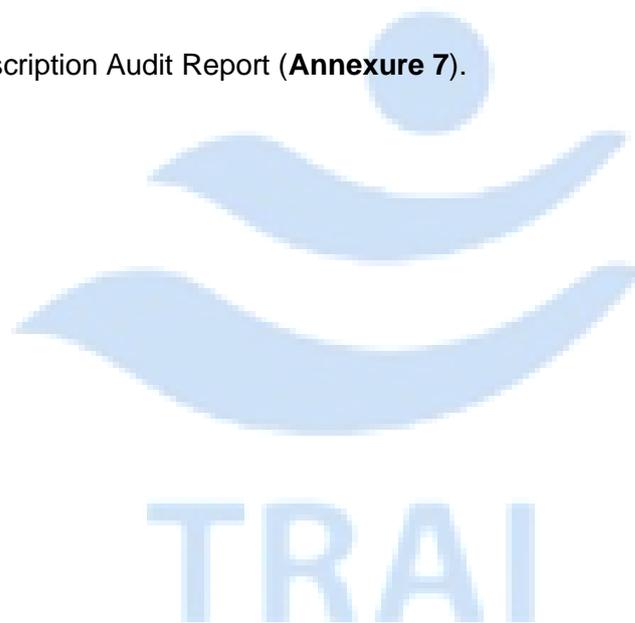
[

Section will have the annexures as required and mentioned in the Audit Report

]

a)

b) Format of Subscription Audit Report (**Annexure 7**).



Audit Report of verification carried out
for

conforming the completeness,
truthfulness and correctness of

Monthly Subscription Reports (MSR)
submitted to

<Name of the Broadcaster> by

M/s _____

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AUDIT DETAILS

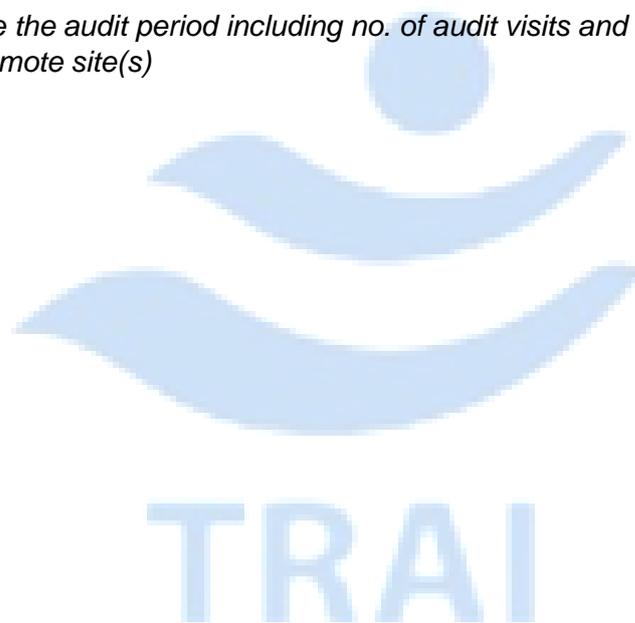
[]

Audit Period & Locations

[

Section will provide the audit period including no. of audit visits and duration of each visit and details of visit at remote site(s)

]



AUDIT REPORT

[]

List of <Name of the Broadcaster>'s channels distributed by the DPO

[

Auditor will provide the list of broadcaster's channels which are being distributed by the DPO OR were distributed by the DPO in entire duration of the audit

(Ideally in tabular form)

]

Count of subscribers as derived by the auditor

Total count of subscribers

Count as on XX.XX.XXXX	Count of VC/ STB			
	As per CAS	As per SMS	Present in SMS not in CAS	Present in CAS not in SMS
Active count				
CAS 1				
CAS 2				
CAS 3				

CAS N				
Inactive count				
CAS 1				
CAS 2				
CAS 3				

CAS N				



Subscriber Count of Channel 1

As on XX.XX.XXXX (any of the randomly picked date from MSR)

Count as on XX.XX.XXXX	Count of VC/ STB									
	As per CAS 1	As per CAS 2	-----	As per CAS N	As per SMS	Present in SMS not in CAS 1	Present in SMS not in CAS 2	----- -	Present in SMS not in CAS N	Present in CAS not in SMS
A-la-carte Subscriptions										
Broadcaster's Package 1 Subscriptions										
Broadcaster's Package 2 Subscriptions										

Broadcaster's Package N Subscriptions										
DPO's Package 1 Subscriptions										
DPO's Package 2 Subscriptions										

DPO's Package N Subscriptions										



[

Section will cover reports for at least 12 weeks i.e. 12 dates for all the PAY Channels

]



Deviation in the count



AUDITOR'S OBSERVATIONS

[

Section will cover point-wise explanation for deviation in the count from MSR

(Ideally in tabular form)

Scope of Work	Status/ Observations
<i>Observations on the Data Extraction Process</i>	
Observations on the Data Analysis	
Observations on the Channel to Package Mapping	
Observations and details of Test STB/ VCs	
Observations on the transaction logs	
EPG wise channel List	
Observations on analysis of TS Recordings	

]

TRAI

AUDITOR'S OPINION & CONCLUSION

[

Section will provide the auditor's opinion and conclusion for the Completeness, Correctness and Truthfulness of the Subscriber count

]



ANNEXURES OF SUBSCRIPTION AUDIT REPORT

[

Section will have the annexures as required and mentioned in the Audit Report

]

